

## **School Bus and Charging Infrastructure Proposals**

As part of ICC's stakeholder workshop process, the Illinois Clean Jobs Coalition (ICJC) previously submitted proposals for funding school buses and related charging infrastructure as part of the beneficial electrification programs that Ameren and ComEd are required to file with the ICC by July 1, 2022. ICJC representatives presented these ideas at the ICC workshop on January 12, 2022.

ICJC submits this additional information as requested by the ICC to assist with the recommendations for its report and cost-benefit calculations. The school bus-specific proposals were submitted separately from proposals related to transit bus electrification, which ICJC views as similarly critical to include in ComEd and Ameren's beneficial electrification plans. The cost benefit calculations for these proposals were provided to the ICC in modeling prepared by Andrew Barbeau.

Utility support for rapid electrification of IL school buses makes eminent sense as it is in the best interests of both the utilities themselves and all of their customers. Over the course of a decade ComEd and Ameren could add 25,000 new bus "customers" or customer add-ons, all of which can be charged at off-peak hours, helping to spread the costs of fixed infrastructure over a larger base of customers. And, to the extent that buses are hooked up and provide V2G they will help utilities even more by feeding power back to the grid during peak times, shaving the need for additional capital-intensive costs.

Included in Andrew Barbeau's presentation January 26 and building upon ICJC Ideas submissions and the Jan 12 oral presentations by ELPC, Bus2Grid Initiative and WRI, are four specific proposals (two each for Ameren and ComEd) addressing electric school buses (ESBs).

For each utility one proposal utilizes the Bus2Grid Initiative approach without assuming state or federal grants. Ameren and ComEd would each provide upfront funding for 20 V2G school buses and charging stations for each of the first 2 years. The upfront funding would cover the differential costs of EV buses (over diesel) and bidirectional charging stations. Cost estimates are based on experience with Pekin electric school bus purchase (\$330,000) & V2G charger/install/infrastructure upgrades (\$75,000) vs. the typical diesel bus purchase price (\$100,000) and the level 2 charger/install/infrastructure upgrades experienced at the Hollis electric school bus site (\$10,000). Each utility would also provide revenue neutral electricity rates and include fair compensation for grid services.

In the other proposal, each utility would cover the costs not supported by IEPA's VW funds or US EPA's soon to be rolled out Clean School Bus (CSB) program funds dedicated for ESBs.

ComEd would cover the local cost share of federal & state grants, payable at time of purchase for 75 V2G capable bidirectional EV school buses & chargers, prioritizing low-income, EJ and eligible communities in its territory. Ameren would cover the local cost share of federal & state

grants, payable at time of purchase for 25 V2G capable bidirectional EV school buses & chargers, prioritizing low-income, EJ and eligible communities.

This level of support for each of first 2 years, limited to buses for schools in low income/EJ/eligible communities, could be done in either of the following ways: 1) cover 100% of whatever is not covered by IL's VW trust fund for a particular application (IEPA's ESB grants have been running \$225,000 each, resulting in \$100,000 per bus not covered by VW); or 2) cover 100% of whatever is not covered by funds from the new US EPA Clean School bus program (1st year guidelines are expected in March 2022). It is also important to bear in mind that these incentives can possibly be stacked. The costs eligible for coverage include buses, bidirectional chargers, infrastructure upgrades, & associated installation; estimated costs include \$45 k for the V2G charger and are based on experience from an installation at a Pekin, IL school of \$30,000 for installation & infrastructures.

These two approaches are not mutually exclusive and could be paired. The banding together of school districts in the Bus2Grid model provides clear benefits to school officials, sharing learnings and districts' reduced costs due to joint bidding and purchasing. Utilizing state VW and federal CSB funds can leverage program dollars so more children ride zero emission buses. The Bus2Grid Initiative has already demonstrated success at applying for IEPA VW funds, having been awarded 10 of the 17 most recently announced ESBs, all that it applied for.

Our proposals all include two critical and identical aspects:

1) ComEd and Ameren each assess ESBs' value to the grid as part of their first/early years' beneficial electrification (and integrated planning) efforts. Without such calculations, neither ComEd, Ameren, nor their customers will ever know or be able to enjoy the benefits that V2G could lead to, including fair compensation for the grid service provided. 2) A focus on historically disadvantaged/overburdened by pollution communities. These residents have been most affected by smokestack emissions, diesel from trucks, and other sources and those children, who have higher rates of asthma, have the most to gain from a rapid transition to ESBs. The children in those districts should be first in line to get the health benefits of ESBs.

#### Illinois low-income school districts and environmental justice communities

- Many school districts in Illinois are considered low-income so it is important to use additional indicators, such as EJ communities.
- The differences in scale mean it is not easy to rapidly compile a list of school districts that are both low-income and include environmental justice communities.
- Illinois Solar for All provides data (both maps and Excel workbooks) of EJ community designations on its webpage [here](#). This data could be used by the ICC, utilities, to try to correlate school districts and environmental justice communities. It could be further enhanced by other tools that show the disparities in greater detail, as described in other ICJC proposals.
- This [slide deck](#) from IEPA includes a map on p. 15 showing areas in red that are both minority and low-income. These areas are in the following counties: Cook, DuPage, Lake,

Winnebago, Boone, Kane, Will, Kankakee, Champaign, Vermillion, Peoria, Tazewell, Madison, St. Clair, Jackson.

### Timeline to Transition

- Using the data from a “Transition Timeline” Excel workbook we ascertain that if ComEd and Ameren get on board to transitioning the entire fleet to electric by 2035, pollution reduction results can be expected:
  - A slow start to fleet transition (156 buses in 5 years) would lead to
    - 4200 lbs. of NOx reduction
    - 64 lbs. of PM2.5 reduction
    - 311 GHG reduction (short tons/CO2 eq.)
  - An aggressive start to fleet transition (2168 buses in 5 years) would lead to
    - 48,413 lbs. of NOx reduction
    - 742 lbs. of PM2.5 reduction
    - 3590 GHG reduction (short tons/CO2 eq.)

We urge ComEd and Ameren to act soon and at scale. Current increases in federal funding for ESBs mean that now is the time to act; they may not last forever. By investing soon and at scale, Ameren and ComEd can become nationwide leaders while ensuring Illinois schools get a share of newly dedicated national resources.

### Help Desk

As part of any Beneficial Electrification ESB plan we suggest ComEd and Ameren each staff a “help desk” that assists districts—particularly under-resourced districts—with the entire process, finding additional state and federal funding, and troubleshooting. The names and contact information must be shared with all IL schools, school bus contractors and easily accessed. Specific aspects that dedicated utility staff could help schools with include:

- Ensuring districts understand whether they actually need additional power (esp. for V2G)
- Informing districts on V2G compatibility of charger options. In case V2G is desired retroactively chargers need to have these features: OCCP communication, UL 1472 approved, inverter for charger (not bus), charge management software.
- Work with schools/school districts/other relevant entities to ensure they are adequately planning for their future transportation needs. One example is:  
Advising on charger location options. While centralized bus depots may not make sense in all cases, utilities should future proof school bus depots where it does make sense in order to plan for growing numbers of electric vehicles, doing the engineering and in front of the meter work necessary to accommodate those buses. chargers.  
In some locations it may make more sense to distribute chargers and “dwelling” locations near more than one school building so buses can charge them when needed (V2B).

- Clearly designating specific staff to work with school districts to seek federal/state funding that can be combined with utility funding. By doing so utilities can maximize the number of buses on the road, create positive relationships and community support.

### **Public Transit Bus and Transit Charging Infrastructure Proposal**

As part of the CEJA stakeholder workshop process, the Illinois Clean Jobs Coalition (ICJC) previously submitted a proposal related to funding public transit buses and related charging infrastructures as part of the beneficial electrification programs that Ameren and ComEd are required to file with the ICC by July 1, 2022. ICJC representatives presented these ideas at the ICC workshop on January 12, 2022. Although there were no questions posed during the presentations, the ICJC submits this additional information as requested by the ICC to assist with cost-benefit calculations, including overall program costs and available tools to assist with quantifying benefits of emission reductions. The public transit-specific proposals were submitted separately from proposals related to school bus electrification, which ICJC views as similarly critical to include in ComEd and Ameren's beneficial electrification plans. The cost benefit calculations for these proposals have been provided to the ICC in modeling prepared by Andrew Barbeau in January 2022.

The proposal, as presented to the Commission, would require ComEd and Ameren to provide rebates for transit agencies to help electrify their diesel and CNG bus fleets, with prioritization for buses that travel through environmental justice communities. The rebates could be used to cover the up-front electric bus costs or to procure the necessary charging infrastructure. The proposed amounts include up to \$5 million per year, per utility, to go toward transit bus charging infrastructure, and an additional \$5 million per year to go toward off-setting the up-front cost differential between diesel and electric transit buses. These two cost barriers were specifically highlighted in CTA's proposal. ICJC's proposal is that utilities provide up to half the price premium for electric buses, and that all utility spending in this category be restricted to purchasing buses and improving the necessary charging infrastructure for buses serving environmental justice communities.

As discussed in ICJC's January 12, 2022 presentation, providing targeted funding for both charging infrastructure and the up-front cost premium for electric transit buses compared to their diesel counterparts would have substantial public health benefits. As noted in the presentation, Respiratory Health Association's 2020 report, "Electrification of CTA Buses: Health Implications of Inaction" found that areas closest to Chicago Transit Authority bus garages and high-ridership routes had significantly increased rates of asthma and chronic obstructive pulmonary disease compared to the rest of Chicago.<sup>1</sup>

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<sup>1</sup> Respiratory Health Association, "Electrification of CTA Buses: The Health Implications of Inaction" at 11 (2018), *available at* <https://resphealth.org/wp-content/uploads/2020/09/CTA-Electrification-Health-Benefits-Report.pdf>.

Benefits of transit bus electrification include significant reductions in on-road greenhouse gas (GHG) emissions and tailpipe emissions (including particulate matter and nitrogen oxides) that negatively impact public health. In designing and weighing project benefits, the utilities and the Commission should consider the quantifiable benefits of reductions in GHG emissions by using the Interagency Working Group's social cost of GHGs (often referred to as the social cost of carbon), which was updated in February 2021 and will very likely be updated in early 2022 with revised figures.<sup>2</sup>

Multiple tools exist that can be used to measure reductions in local air pollutants and the resulting public health benefits of electrifying transit buses.

First, Argonne National Laboratory's Alternative Fuel Life-Cycle Environmental and Economic Transportation ("AFLEET") tool is designed to forecast changes in gasoline use, greenhouse gas emissions, air pollution from tailpipe emissions, and total cost of ownership when comparing diesel and electric vehicles for both light-duty and heavy-duty classes.<sup>3</sup> AFLEET's heavy-duty vehicle module forecasts particulate matter (PM<sub>2.5</sub>), nitrogen oxides (NO<sub>x</sub>) and "well-to-wheel" GHGs for diesel and electric buses. According to Argonne, it is "ideally suited to aid fleets and decision makers compare vehicle technologies for emission reductions and consider allocation of funding."<sup>4</sup>

Second, EPA's CO-Benefits Risk Assessment (COBRA) screening model is a publicly-accessible tool that according to EPA can be used to, "explore how changes in air pollution from clean energy policies and programs ... can affect human health at the county, state, regional, or national levels;" calculate the "economic value of the health benefits" and "compare against program costs;" and "map and visually represent the air quality, human health, and health-related economic benefits from reductions in emissions of particulate matter (PM<sub>2.5</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), ammonia (NH<sub>3</sub>), and volatile organic compounds (VOCs)."<sup>5</sup> COBRA was used in December 2021 by ERM (formerly MJ Bradley) to estimate benefits of vehicle electrification policies in a Virginia State Corporation Commission stakeholder workshop proceeding.

Third, EPA's Diesel Emissions Quantifier ("DEQ") tool<sup>6</sup> is another available option, though before recommending its use the ICC should examine whether critiques of the model with regard to estimates of NO<sub>x</sub> emissions from vehicles when idling and at low speeds were addressed in a

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<sup>2</sup> Interagency Working Group, "Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990" (Feb. 2021 update), [https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument\\_SocialCostofCarbonMethaneNitrousOxide.pdf](https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf).

<sup>3</sup> <https://afleet.es.anl.gov/home/>.

<sup>4</sup> <https://afleet.es.anl.gov/hdv-emissions-calculator/>.

<sup>5</sup> EPA, What is COBRA?, <https://www.epa.gov/node/265451>.

<sup>6</sup> EPA, Diesel Emissions Quantifier Tool, <https://cfpub.epa.gov/quantifier/index.cfm?action=main.home>.

July 2021 update. According to EPA, the DEQ “provides an interactive, web-based tool for users with little or no modeling experience; evaluates clean diesel projects and upgrade options for *medium-heavy and heavy-heavy duty diesel engines*; and estimates baseline emissions, reduced emissions, cost effectiveness for NO<sub>x</sub>, PM<sub>2.5</sub>, HC, CO and CO<sub>2</sub>, and PM-related health benefits.”<sup>7</sup> This tool quantifies benefits of clean transportation options by estimating the economic value associated with improved air quality, including factors such as days of school or work missed, increased incidence of asthma and other upper and lower respiratory symptoms, nonfatal heart attacks, hospital and emergency room visits.<sup>8</sup>

By providing access to funding for electric transit buses and infrastructure – and tying that funding to projects that serve defined environmental justice areas – this proposal would help ensure that the benefits of transportation electrification reach environmental justice communities in a timely manner, as many low-to-moderate income communities rely heavily on public transportation and are frequently the most burdened by transportation-related tailpipe pollution. By reducing particulate matter and other tailpipe emissions, the program would have direct health benefits on the communities that rely on these buses, and can be rolled out in a way that promotes equity and prioritizes updates to buses, route, and garage facilities in environmental justice neighborhoods.

### **ICJC Response to Utility Ownership Proposal**

In the presentation by RTD, which runs transit buses in San Joaquin, the agency advocated for utility ownership of charging stations. The ICJC cautions against blanket approval to allow utilities to own charging stations - or a blanket disapproval. There will be instances where utility ownership of charging stations and make-ready on the customer side of the meter will be desirable; for example, a small business or transit agency operating in an eligible community may not have the capacity or technological savvy to deal with the ins and outs of transportation electrification, despite the potential benefits it holds. If having soup-to-nuts utility intervention - up to and including the charging station - would be beneficial, that option should be baked into utility programs. Similarly, private investment might not yet be robust enough to target charging station deployment in eligible communities; if utility ownership of charging stations can help thread that needle, at least in the near-term, it should be on the table. However, guidance should be carefully crafted to ensure that utilities are not allowed to own/ratebase behind the meter assets with unlimited discretion; given the limited budget of transportation electrification plans, Utility ownership should be limited, ideally to charging stations in eligible communities.

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<sup>7</sup> *Id.*

<sup>8</sup> EPA, Diesel Emissions Quantifier, Health Benefits Methodology, (Aug. 2010), <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100ABPE.pdf>.

That being said, the ICC would do well to follow California's example of ratebasing make-ready infrastructure in front of the meter (that is, on the utility side of the meter) as a matter of course. Given that a fundamental goal of these beneficial electrification plans is to "facilitate the rapid deployment of charging equipment throughout the State, facilitate the electrification of public transit and other vehicle fleets in the light-duty, medium-duty, and heavy-duty sectors," avoiding a situation where the source of funding for *in front of the meter* assets is decided on a customer-by-customer basis would streamline infrastructure deployment in a way that helps achieve that goal. The ICJC notes that this provision for utility-side make-ready does not impact our contention that utility ownership of behind the meter assets needs to be limited. The large majority of customers still have to be responsible for a significant portion of cost – the behind the meter assets - rather than ratepayers more generally.

### **ICJC Summary of Voucher Proposal**

Following the Jan 12 presentation by Jobs to Move America and Warehouse Workers for Justice, the ICJC wants to highlight the need for substantial EV Act investment in electrifying diesel vehicles within equity eligible communities through an up-front incentives program that creates a competitive application process for eligible vendors and voucher recipients to promote transparency, affordability, and incentives for the creation of high quality jobs in the EV sector.

ComEd and Ameren should provide point-of-purchase vouchers for transit agencies and school districts, individual truck owner-operators, and private businesses to electrify their diesel fleets, with prioritization for buses and trucks that travel through environmental justice communities. The vouchers could be used to cover up-front electric vehicle costs. Utilities should establish criteria for targeting categories of voucher recipients, including prioritization of MHD vehicles that pass through EJ communities, and a limitation on the amount/percentage of vouchers provided to larger businesses.

This program is proposed to help address existing inequities in Illinois communities bearing the burdens of diesel pollution most heavily. A comprehensive voucher program will provide a pathway to MHD electric vehicles operating in EJ and equity-eligible communities through increasing access to information and providing affordable pathways for buyers looking to make the transition to EV. This program will not only address the barrier of MHD EV cost, but also encourage the creation of high-quality manufacturing and other green jobs benefitting equity-eligible workers.

To promote transparency and accountable oversight of public EV Act Funds, there should be an application process to become an eligible vendor, as well as an application process to receive

incentive funds. Applications should be considered public records. Electric vehicle dealers and manufacturers would be approved as vendors through a Vendor Eligibility Application that, in addition to technical and pricing information, requires an Employment and Training Plan with specific commitments around job creation, job quality, and recruitment and training of equity-eligible individuals. For public sector applicants (e.g., transit agencies, school districts) the Voucher Request Form would require technical information related to the location and proposed use of the vouchers. For private fleets, the Voucher Request Form would also require information about the applicant's workforce, job quality, and safety training and equity-eligible worker recruitment.

We would like to highlight previous comments submitted on November 17th by the Clean Jobs Coalition recommending that at least 50% of all EV Act investment in make-ready infrastructure as well as at least 50% of the total beneficial electrification plan budget for each utility be directed toward medium-and heavy-duty electrification within low income, environmental justice, and eligible communities to adequately achieve CEJA's goals of transportation electrification within EJ, low income, and eligible communities. We want to reaffirm the need for this kind of substantial investment in electrifying diesel vehicles in communities bearing the brunt of transportation-related pollution across Illinois, and propose that this voucher proposal, or an equivalent proposal that involves a competitive application process to support transparency, affordability, and incentives for the creation of high-quality EV jobs, is used to disburse these EV Act funds.